Room-Temperature Resistivity of Various Materials

Table 25.1 Resistivities at Room Temperature (20°C)

	Substance	ρ ($\Omega \cdot m$)		Substance	ρ ($\Omega \cdot m$)
Conductors			**Semiconductors**		
Metals	Silver	1.47×10^{-8}		Pure carbon (graphite)	3.5×10^{-5}
	Copper	1.72×10^{-8}		Pure germanium	0.60
	Gold	2.44×10^{-8}		Pure silicon	2300
	Aluminum	2.75×10^{-8}	**Insulators**		
	Tungsten	5.25×10^{-8}		Amber	5×10^{14}
	Steel	20×10^{-8}		Glass	10^{10}–10^{14}
	Lead	22×10^{-8}		Lucite	$>10^{13}$
	Mercury	95×10^{-8}		Mica	10^{11}–10^{15}
Alloys	Manganin (Cu 84%, Mn 12%, Ni 4%)	44×10^{-8}		Quartz (fused)	75×10^{16}
	Constantan (Cu 60%, Ni 40%)	49×10^{-8}		Sulfur	10^{15}
	Nichrome	100×10^{-8}		Teflon	$>10^{13}$
				Wood	10^{8}–10^{11}

Temperature Coefficient of Resistivity (Metals)

Table 25.2 Temperature Coefficients of Resistivity (Approximate Values Near Room Temperature)

Material	$\alpha\ [(°C)^{-1}]$	Material	$\alpha\ [(°C)^{-1}]$
Aluminum	0.0039	Lead	0.0043
Brass	0.0020	Manganin	0.00000
Carbon (graphite)	−0.0005	Mercury	0.00088
Constantan	0.00001	Nichrome	0.0004
Copper	0.00393	Silver	0.0038
Iron	0.0050	Tungsten	0.0045